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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/209,982	12/09/1998	MICHAEL KAPLINSKY	08305/050001	6236

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EXAMINER	
VILLECCO, JOHN M	
ART UNIT	**PAPER NUMBER**
2612	

DATE MAILED: 12/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/209,982	KAPLINSKY, MICHAEL	
	Examiner	Art Unit	
	John M. Villecco	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-9,11-13 and 15-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-9,11-13 and 15-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 November 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 16, 2004 has been entered.

Response to Arguments

2. Applicant's arguments with regard to claims 1 and 6, filed September 16, 2004, have been fully considered but they are not persuasive.

3. Regarding claim 1, applicant has amended the claim to incorporate white as a reference color and the fact that a single color correction matrix is obtained for simultaneously minimizing the respective error measures for the reference colors, and applying the matrix to an input image to provide color correction and white balance for each of the reference colors. Applicant then argues that Kim does not teach a single color correction matrix that is adjusted to minimize simultaneously said respective error measure to obtain optimum overall correction for each of said plurality of reference colors. However, it is clear from the specification of Kim that the color correction matrix (51) is performing the exact same function as the color correction matrix of the applicant's invention.

It appears that the applicant is trying to make a correlation between the gray level correction that is taking place in Kim using the gray level matrix (52) and the white balance that is being claimed by the applicant. Firstly, Kim teaches that the gray level correction matrix (52) is used not for white balance but for matching the gray level reproduction characteristic with the visual characteristic of the human being. In other words, the gray level matrix is used for gamma correction (col. 16, lines 42-54). Secondly, the gray level correction of Kim is performed using the achromatic portion (11) of the test chart (10). However the examiners previous rejection points out that the chromatic portion (12) of the test chart (10) is being relied upon. The chromatic portion (12) of the test chart includes various shades of white as shown in Figure 3. Since the error measurement for white and all of the other colors of the test chart (10) are being generated for the color correction matrix (51), the exact same processing is being performed as in the applicant's invention. Therefore, Kim does disclose a single color correction matrix (51) that applies the color correction coefficients to image data to provide color corrected and white balanced image data.

4. As for claim 6, applicant has amended and argues the claim limitation of the image sensor using only a single color correction matrix. As discussed above, the examiner believes that Kim does disclose a single color correction matrix. Please see the discussion above.

5. Applicant's arguments with respect to claim 13 have been considered but are moot in view of the new ground(s) of rejection.

6. Furthermore, applicant's attention is drawn to the fact that a new 112 rejection to newly added claims, and an objection to the drawings have been presented. Please see the office action on the subsequent pages.

Drawings

7. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the color correction matrix in claim 1, the weighting factors in claim 3, the image processor in claim 6, the color correction matrix in claim 6, and the color correction matrix of claim 13 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claim 19 and 20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. More specifically, one of ordinary skill in the art would not be enabled to dynamically adjust the white balance, in real-time, such that ratios of color channels of the imager at white areas of the image equal ratios of the same color channels measured for white image areas in the same illumination conditions as existed when obtaining said color correction matrix. After a thorough examination of the specification, the only portion of the specification which deals with this topic can be found on page 13, line 23 to page 14, line 6. This single paragraph provides no more information on how the ratios of the color channels of the imager at white areas of the image equal ratios of the same color channels measured for white image areas in the same illumination conditions as existed when obtaining the color correction matrix, than does the claim language. It is not clear to one of ordinary skill in the art how white the ratios are kept the same and how it relates to the formulation of the color correction matrix. For the above reasons, one of the ordinary skill in the art would not be enabled on how to keep the ratios of the ratios of color channels of the imager at white areas of the image equal to the ratios of the same color channels measured for white image areas in the same illumination conditions as existed when obtaining said color correction matrix.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1, 4-8, and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Kim (U.S. Patent No. 6,320,668).

12. Regarding ***claim 1***, Kim discloses a color correction apparatus and method in an imaging system. Kim discloses obtaining reference outputs from an image sensor using a color image array (20). The reference outputs are derived from a chromaticity chart shown as reference number 12 in Figure 3. The chromaticity chart includes the primary colors (red, green, and blue) as well as 21 additional colors for a total of 24 colors. The system receives an input from a colorimeter and compares it to the input reference data. The system then operates to reduce an error between the colorimetric scanning data and the data obtained by scanning the chromatic test pattern (12) by computing a color coefficient correction matrix. See column 13, lines 40-64 and column 21, lines 18-50. In this manner the system is optimized for each of the input colors and color–corrected image is obtained. The applicant's claim is directed toward performing color correction also including gray scale references as colors. Therefore, as shown in Figure 3, the last line of the chromatic portion (12) of the test chart (10) is interpreted to be a gray scale line (col. 12, lines 25-27) used in the color correction.

13. Regarding ***claim 4***, Kim discloses using 24 colors in the color chart (12). Thus, the system uses at least 7 colors. See column 12, lines 15-30.

14. As for ***claim 5***, Kim discloses using 24 colors in the color chart. See column 12, lines 15-30.

15. With regard to ***claim 6***, Kim discloses a color correction apparatus and method in an imaging system. Kim discloses obtaining reference outputs from an image sensor using a color image array (20). A spectral optical system is used which includes a color resolution filter (col. 7, lines 45). The system outputs spectral information regarding the RGB colors (col. 13, lines 46 and 47). This amounts to an interpolation to determine all color components that impinge on the pixel. The reference outputs are derived from a chromaticity chart shown as reference number 12 in Figure 3. The chromaticity chart includes the primary colors (red, green, and blue) as well as 21 additional colors for a total of 24 colors. The system receives an input from a colorimeter and compares it to the input reference data. The system then operates to reduce an error between the colorimetric scanning data and the data obtained by scanning the chromatic test pattern (12) by computing a color coefficient correction matrix. See column 13, lines 40-64 and column 21, lines 18-50. The color correction-processing unit acts as the image interpolator since it performs the color correction. In this manner the system is optimized for each of the input colors and color–corrected image is obtained. The applicant's claim is directed toward performing color correction also including gray scale references as colors. Therefore, as shown in Figure 3, the last line of the chromatic portion (12) of the test chart (10) is interpreted to be a gray scale line (col. 12, lines 25-27) used in the color correction.

16. Regarding ***claim 7***, Kim discloses that the color chart (12) includes red, green, blue, white, and 20 additional colors. See column 12, lines 15-30.

17. As for ***claim 8***, Kim discloses using 24 colors in the color chart. See column 12, lines 15-30.

18. Regarding ***claim 12***, Kim discloses using each color of the color chart (12) to produce a color correction matrix. See column 11, line 65 to column 12, line 41.

Claim Rejections - 35 USC § 103

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

20. **Claims 3, 9, 11, 13, 15-18, 21, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (U.S. Patent No. 6,320,668) in view of Yamaguchi (Japanese Publ. No. 02-074367 A)**.

21. Regarding ***claim 15,*** as mentioned above in the discussion of claim 1, Kim discloses all of the limitations of the parent claim. However, Kim fails to disclose weighting certain colors more than others. Yamaguchi, on the other hand, discloses that it is well known in the art to weigh some colors more than others when constructing a color correction matrix. See the abstract. By choosing certain colors to be weighted more than others, the system is placing more emphasis on specific colors. By placing more emphasis on certain colors such as flesh tones, the colors which are important and to which the eyes are more sensitive will be emphasized, thus

producing a higher quality image. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to emphasize the error measurements of specific colors in Kim so that colors which are important to an image are given more weight, thereby forming a better image.

22. As for ***claim 3***, as shown in column 21, lines 18-50, Kim discloses calculating a minimum value for each of the error values of the red green and blue components of the input colors. In this case the reference is denoted as P_{Ri}, P_{Gi}, and P_{Bi}. The input colorimetric data is denoted as $\underline{P}_{Ri}$, $\underline{P}_{Gi}$, and $\underline{P}_{Bi}$.

23. As for ***claim 16***, as mentioned above in the discussion of claim 15, Yamaguchi discloses weighing flesh tones more than others. See the abstract.

24. Regarding ***claim 21***, Yamaguchi discloses weighing certain colors more than others (i.e. flesh tones). Additionally, Yamaguchi teaches that a weighing factor is applied to specific colors within the color correction matrix in order to weigh flesh tones more heavily. See the abstract. The fact that flesh tones are weighed more than other less important colors, shows that Kim is concerned with the impact of the flesh tones on the image quality.

25. With regard to ***claim 9***, as mentioned above in the discussion of claim 6, Kim discloses all of the limitations of the parent claim. However, Kim fails to disclose weighting certain colors more than others. Yamaguchi, on the other hand, discloses that it is well known in the art to weigh some colors more than others when constructing a color correction matrix. See the abstract. By choosing certain colors to be weighted more than others, the system is placing more emphasis on specific colors. By placing more emphasis on certain colors such as flesh tones, the colors which are important and to which the eyes are more sensitive will be emphasized, thus

producing a higher quality image. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to emphasize the error measurements of specific colors in Kim so that colors which are important to an image are given more weight, thereby forming a better image.

26. With regard to ***claim 11***, as mentioned above in the rejection of claim 6, it is obvious to weight colors which are important (and to which the eye is more sensitive to), higher than other colors, so that a higher quality image is formed. It is well known in the art that red, green, and blue are very important colors, and thus it would have been obvious to one of ordinary skill in the art to weigh these colors more than the dull colors.

27. As for ***claim 17***, the equations represented by the color correction processing unit would inherently be solved simultaneously in Kim.

28. Regarding ***claim 22***, Yamaguchi discloses weighing certain colors more than others (i.e. flesh tones). Additionally, Yamaguchi teaches that a weighing factor is applied to specific colors within the color correction matrix in order to weigh flesh tones more heavily. See the abstract. The fact that flesh tones are weighed more than other less important colors, shows that Kim is concerned with the impact of the flesh tones on the image quality.

29. Regarding ***claim 18***, as mentioned above in the discussion of claim 6, Kim discloses all of the limitations of the parent claim. However, Kim fails to disclose weighting certain colors more than others. Yamaguchi, on the other hand, discloses that it is well known in the art to weigh some colors more than others when constructing a color correction matrix. See the abstract. By choosing certain colors to be weighted more than others, the system is placing more emphasis on specific colors. By placing more emphasis on certain colors such as flesh tones, the

colors which are important and to which the eyes are more sensitive will be emphasized, thus producing a higher quality image. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to emphasize the error measurements of specific colors in Kim so that colors which are important to an image are given more weight, thereby forming a better image.

30. As for ***claim 13***, Kim discloses a color correction apparatus and method in an imaging system. Kim discloses obtaining reference outputs from an image sensor using a color image array (20). A spectral optical system is used which includes a color resolution filter (col. 7, lines 45). Inherently a color filter operates to supply only light of a certain wavelength to the pixel which it covers. The system outputs spectral information regarding the RGB colors (col. 13, lines 46 and 47). The reference outputs are derived from a chromaticity chart shown as reference number 12 in Figure 3. The chromaticity chart includes the primary colors (red, green, and blue) as well as 21 additional colors for a total of 24 colors. The system receives an input from a colorimeter and compares it to the input reference data. The system then operates to reduce an error between the colorimetric scanning data and the data obtained by scanning the chromatic test pattern (12) by computing a color coefficient correction matrix. See column 13, lines 40-64 and column 21, lines 18-50. In this manner the system is optimized for each of the input colors and color–corrected image is obtained. The applicant's claim is directed toward performing color correction also including gray scale references as colors. Therefore, as shown in Figure 3, the last line of the chromatic portion (12) of the test chart (10) is interpreted to be a gray scale line (col. 12, lines 25-27) used in the color correction.

However, Kim fails to disclose weighting certain colors more than others. Yamaguchi, on the other hand, discloses that it is well known in the art to weigh some colors more than others when constructing a color correction matrix. See the abstract. By choosing certain colors to be weighted more than others, the system is placing more emphasis on specific colors. By placing more emphasis on certain colors such as flesh tones, the colors which are important and to which the eyes are more sensitive will be emphasized, thus producing a higher quality image. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to emphasize the error measurements of specific colors in Kim so that colors which are important to an image are given more weight, thereby forming a better image.

Any response to this action should be mailed to:

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or faxed to:

(703) 872-9306 (For either formal or informal communications intended for entry. For informal or draft communications, please label "**PROPOSED**" or "**DRAFT**")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington VA, Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John M. Villecco whose telephone number is (703) 305-1460. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on (703) 305-4929. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

John M. Villecco
December 9, 2004

AUNG MOE
PRIMARY EXAMINER